

AMENDMENTS TO THE CLAIMS

1. (Currently Amended): An explicit routing method in a label switching system, comprising:

a step of logically dividing a label switching router (LSR) into a plurality of LSRs each having a label switching function; and

a step of merely specifying only, when setting a label switched path (LSP) on the basis of an explicit route specified, a port or a port group of an egress node that corresponds to the LSR terminating the LSP within the plurality of logically divided LSRs.

2. (Withdrawn): An explicit routing method in a label switching system, comprising:

a step of flooding, as topology data, a set of an intra-system port and an IP address allocated to the port, or a set of a port group among a plurality of groups into which the ports are divided, and an IP address allocated to the port group; and

a step of managing the topology data flooded from other system and, when setting a label switched path on the basis of an explicit route specified, explicitly specifying a port or a port group of an egress node, and a port or a port group of a relay node on the basis of the received topology data.

3. (Withdrawn): An explicit routing method in a label switching system, comprising:

a step of flooding, as topology data, a set of an intra-system port and an IP address allocated to the port, or a set of a port group among a plurality of groups into which the ports are divided, and an IP address allocated to the port group.

4. (Withdrawn): An explicit routing method in a label switching system, comprising:
a step of flooding, as topology data, a set of an intra-system port and an IP address allocated to the port, or a set of a port group among a plurality of groups into which the ports are divided, and an IP address allocated to the port group by use of Opaque LSA of OSPF protocol.

5. (Cancelled)

6. (Previously Amended): An explicit routing method in a label switching system, including explicitly specifying, when setting a label switched path (LSP) on the basis of an explicit route specified, a port or a port group of an egress node, and a port or a port group of a relay node, the explicit routing method comprising:

a step of specifying a port or a port group of the egress node by setting an IP address corresponding to the port or the port group of the egress node in a final ER-HOP-TLV field in ER-TLVs in Label Request Message of CR-LDP (Constraint-Based LSP setup using LDP (Label Distribution Protocol)); and

a step of specifying a port or a port group of the relay node by setting an IP address corresponding to the port or the port group of the relay node in an intermediate ER-HOP-TLV field in ER-TLVs in Label Request Message of the CR-LDP.

7. (Previously Amended): An explicit routing method in a label switching system, including explicitly specifying, when setting a label switched path (LSP) on the basis of an explicit route specified, a port or a port group of an egress node, and a port or a port group of a relay node, the explicit routing method comprising:

a step of specifying the port or the port group of the egress node and the port or the port group of the relay node by adding an intra-system port number or an intra-system port group number in an ER-HOP-TLV field in ER-TLVs in Label Request Message of CR-LDP (Constraint-Based LSP setup using LDP (Label Distribution Protocol)).

8. (Previously Amended): An explicit routing method in a label switching system, including explicitly specifying, when setting a label switched path (LSP) on the basis of an explicit route specified, a port or a port group of an egress node, and a port or a port group of a relay node, the explicit routing method comprising:

a step of explicating a port through which data should pass per system and specifying a port or a port group of the egress node by use of a resource class TLV field with ER-TLV in Label Request Message of CR-LDP (Constraint-Based LSP setup using LDP (Label Distribution Protocol)) being used as ER-HOP-TLV.

9. (Previously Amended): An explicit routing method in a label switching system, including explicitly specifying, when setting a label switched path (LSP) on the basis of an explicit route specified, a port or a port group of an egress node, and a port or a port group of a relay node, the explicit routing method comprising:

a step of specifying a port or a port group of the egress node by setting an IP address corresponding to the port or the port group of the egress node in a final Subject-object field in Explicit Route Objects in a path message of RSVP protocol (Resource reSerVation Protocol) extended for setting a label switched path in MPLS protocol (Multi Protocol Label Switching); and

a step of specifying a port or port group of the relay node by setting an IP address corresponding to the port or the port group of the relay node in an intermediate Subject-object field in Explicit Route Objects in the path message of the RSVP protocol.

10. (Previously Amended): An explicit routing method in a label switching system, including explicitly specifying, when setting a label switched path (LSP) on the basis of an explicit route specified, a port or a port group of an egress node, and a port or a port group of a relay node, the explicit routing method comprising:

a step of specifying a port or a port group of the egress node and a port or a port group of the relay node by adding an intra-system port number or an intra-system port group number in a Subject-object field in Explicit Route Objects in the path message of RSVP protocol (Resource reSerVation Protocol) extended for setting the label switched path in MPLS protocol (Multi Protocol Label Switching).

11. (Previously Amended): An explicit routing method in a label switching system, comprising:

a step of specifying an MPLS (Multi Protocol Label Switching) explicit route by adding, to an MPLS-to-IP forwarding function of a port group in one specified egress node, a communication function with the MPLS-to-IP forwarding function of a port group in an intra-system other egress node, and a forwarding function to the port group in the intra-system other egress node.

12. (Currently Amended): A packet router in a label switching system, comprising:

a logical router configuring module for logically dividing a label switching router (LSR) into a plurality of LSRs each having a label switching function; and

a module for ~~merely specifying~~ only, when setting a label switched path (LSP) on the basis of an explicit route specified, a port or a port group of an egress node that corresponds to the LSR terminating the LSP within the plurality of logically divided LSRs.

13.(Withdrawn): A packet router in a label switching system, comprising:

a module for flooding, as topology data, a set of an intra-system port and an IP address allocated to the port, or a set of a port group among a plurality of groups into which the ports are divided, and an IP address allocated to the port group; and

a module for managing the topology data flooded from other system and, when setting a label switched path on the basis of an explicit route specified, explicitly specifying a port or a port group of an egress node, and a port or a port group of a relay node on the basis of the received topology data.

14. (Withdrawn): A packet router in a label switching system, comprising:

a module for flooding, as topology data, a set of an intra-system port and an IP address allocated to the port, or a set of a port group among a plurality of groups into which the ports are divided, and an IP address allocated to the port group.

15.(Withdrawn): A packet router in a label switching system, comprising:

a module for flooding, as topology data, a set of an intra-system port and an IP address allocated to the port, or a set of a port group among a plurality of groups into which the

ports are divided, and an IP address allocated to the port group by use of Opaque LSA of OSPF protocol.

16. (Cancelled)

17. (Previously Amended): A packet router in a label switching system, including explicitly specifying, when setting a label switched path (LSP) on the basis of an explicit route specified, a port or a port group of an egress node, and a port or a port group of a relay node, the packet router comprising:

a module for specifying a port or a port group of the egress node by setting an IP address corresponding to the port or the port group of the egress node in a final ER-HOP-TLV field in ER-TLVs in Label Request Message of CR-LDP (Constraint-Based LSP setup using LDP (Label Distribution Protocol)); and

a module for specifying a port or a port group of the relay node by setting an IP address corresponding to the port or the port group of the relay node in an intermediate ER-HOP-TLV field in ER-TLVs in Label Request Message of the CR-LDP.

18. (Previously Amended): A packet router in a label switching system, including explicitly specifying, when setting a label switched path (LSP) on the basis of an explicit route specified, a port or a port group of an egress node, and a port or a port group of a relay node, the packet router comprising:

a module for specifying the port or the port group of the egress node and the port or the port group of the relay node by adding an intra-system port number or an intra-system port

group number in a ER-HOP-TLV field in ER-TLVs in Label Request Message of CR-LDP (Constraint-Based LSP setup using LDP (Label Distribution Protocol)).

19. (Previously Amended): A packet router in a label switching system, including explicitly specifying, when setting a label switched path (LSP) on the basis of an explicit route specified, a port or a port group of an egress node, and a port or a port group of a relay node, the packet router comprising:

a module for explicating a port through which data should pass per system and specifying a port or a port group of the egress node by use of a resource class TLV field with ER-TLV in Label Request Message of CR-LDP (Constraint-Based LSP setup using LDP (Label Distribution Protocol)) being used as ER-HOP-TLV.

20. (Previously Amended): A packet router in a label switching system, including explicitly specifying, when setting a label switched path (LSP) on the basis of an explicit route specified, a port or a port group of an egress node, and a port or a port group of a relay node, the packet router comprising:

a module for specifying a port or a port group of the egress node by setting an IP address corresponding to the port or the port group of the egress node in a final Subject-object field in Explicit Route Objects in a path message of RSVP protocol (Resource reSerVation Protocol) extended for setting a label switched path in MPLS protocol (Multi Protocol Label Switching); and

a module for specifying a port or port group of the relay node by setting an IP address corresponding to the port or the port group of the relay node in an intermediate Subject-

object field in Explicit Route Objects in the path message of the RSVP protocol.

21. (Previously Amended): A packet router in a label switching system, including explicitly specifying, when setting a label switched path (LSP) on the basis of an explicit route specified, a port or a port group of an egress node, and a port or a port group of a relay node, the packet router comprising:

a module for specifying a port or a port group of the egress node and a port or a port group of the relay node by adding an intra-system port number or an intra-system port group number in an Subject-object field in Explicit Route Objects in the path message of RSVP protocol (Resource reSerVation Protocol) extended for setting the label switched path in MPLS protocol.

22. (Previously Amended): A packet router in a label switching system, comprising:

a module for specifying an MPLS (Multi Protocol Label Switching) explicit route by adding, to an MPLS-to-IP forwarding function of a port group in one specified egress node, a communication function with the MPLS-to-IP forwarding function of a port group in an intra-system other egress node, and a forwarding function to the port group in the intra-system other egress node.